ARBORTECH™

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AS160

Brick + Mortar Saw

Instruction Manual

Double Insulation used throughout,
no provision for earthing.

MADE IN AUSTRALIA
REV-130607

Please read this manual carefully to ensure correct operation and care of the machine. If you use the AS160 correctly, it will provide you with years of reliable service and save you time and money.

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Please read these instructions before you use your AS160 Brick + Mortar Saw

1. INTRODUCTION

The Arbortech AS160 is designed and manufactured in Australia, using only the highest quality components and manufacturing processes.

The unique patented orbital cutting action of two reciprocating blades, allows cutting of brick, mortar and masonry (see material specifications, table 3) faster than traditional reciprocating saws.

This cutting action also produces minimal amounts of airborne dust, offers safe and controllable operation, has the ability to "plunge" cut to 120mm (5") depth, and into square corners, and make variable width cuts. The AS160 is ideally suited to a variety of tasks including:

- removal of mortar for "tuck pointing" of bricks.
- removal of single bricks from walls.
- cutting of bricks without damage to adjacent areas or "blow-out".
- stitching, keying or toothing of brick walls.
- "chasing" cuts for conduits and similar items into walls.
- cutting holes in walls or other surfaces.
- finishing corner cuts in walls.
- cutting in dirty wood.
- cutting wood in the ground.
- tree root removal.
- pruning trees.

The tool can be fitted with a range of blades to best suit different applications.

IMPORTANT
INCORRECT USE OF THE AS160 MAY LEAD TO PREMATURE WEAR AND/OR DAMAGE. PLEASE READ THESE USER INSTRUCTIONS FULLY BEFORE USE TO ENSURE CORRECT OPERATION.

2. GENERAL SAFETY RULES

WARNING! Read all instructions. *Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury. The term "power tool" in all of the warnings listed below refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.*

SAVE THESE INSTRUCTIONS

1) **Work area**

a) **Keep work area clean and well lit**. *Cluttered and dark areas invite accidents.*

b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*

c) **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control*

2) **Electrical safety**

a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock*

b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** *There is an increased risk of electric shock if your body is earthed or grounded.*

c) **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*

d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** *Damaged or entangled cords increase the risk of electric shock.*

e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** *Use of a cord suitable for outdoor use reduces the risk of electric shock.*

3) **Personal safety**

a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*

b) **Use safety equipment. Always wear eye protection.** *Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*

c) **Avoid accidental starting. Ensure the switch is in the off-position before plugging in.** *Carrying power tools with your finger on the switch or plugging in power* ***tools*** *that have the switch on invites accidents.*

d) **Remove any adjusting key or wrench before turning the power tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*

e) **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*

f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** *Loose clothes, jewellery or long hair can be caught in moving parts.*

g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** *Use of these devices can reduce dust-related hazards.*

4) **Power tool use and care**

a) **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool will do the job better and safer at the rate for which it was designed.*

b) **Do not use the power tool if the switch does not turn it on and off.** *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*

c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*

d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*

e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*

f) **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*

g) **Use the power tool, accessories and tool bits etc. in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*

5) **Service**

a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the power tool is maintained.*

NOTE: Refer to the assembly (section 5) for a list of user replacable parts.

3. SPECIFIC SAFETY RULES

1. **Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.** Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.

2. **Remove adjusting tools** such as Allen & lan keys and wrenches before operating the tool.

3. **Do not operate the tool with any attachment other than those recommended** in this instruction manual.

4. **Only use the tool with the correct voltage**, as specified in the tool lable.

5. **Never start a tool under load**. Start the tool before engaging the work piece.

6. **Never start or operate the tool with fingers or other objects through the holes in the blades.**

7. **Use care when handling blades during and after use.** The blades and some areas of the tool become hot in use.

8. **Always ensure that before cutting there are no hazards such as electrical wiring, pipes or insulation in the area to be cut.**

9. **Allow for resting periods** to ease the effect of the vibration of the tool. Use work gloves to minimise vibration effect on the body.

10. **Ensure the dust extraction equipment is connected and properly used.**

11. **Keep handles dry, clean and free from oil and grease.**

12. **If the guard or other part appears to be damaged, it should be carefully checked** to determine that it will operate properly and perform its intended function.

13. **The use of any accessory or attachment other than those recommended in this instruction manual may present a risk of personal injury.**

14. **Do not force the tool.** It is designed to operate with moderate effort. Overheating of the drive system and motor can occur if the tool is overloaded.

15. **Always operate the tool holding it with both hands.**

SYMBOLS

The following show the symbols used in this manual

..... Class 2 Construction (Double Insulation used throughout, no provision for earthing.)

VAC	.....	volts alternating current	dB	.....	decibels
A	.....	amperes	Nm	.....	newton meters
Hz	.....	hertz	m	.....	meters
W	.....	watt	m/s	.....	meters per second
n_0	.....	no load speed	mm	.....	millimeters
rpm	.....	revolutions per minute	kg-m	.....	kilogram meters
			ft-lb	.....	foot pounds

4. FUNCTIONAL DESCRIPTION

4.1 AS160 TOOL DESCRIPTION

The AS160 is designed to cut rigid materials such as mortar, clay fired bricks, plasterboard, fibreboard, weatherboard and wood. The AS160 uses a variety of blades to suit the material being cut. Blades may also be changed to suit the required depth or length of cut.

The blades are driven via conrods and a camshaft, which is belt-driven. The V-belt is designed to allow some slip in case of the blades jamming. It is easily replaced by removing the plastic cover and is tensioned using the adjustable idler pulley (see section 11.3).

Blades are mounted to the conrods using high tensile Allen™ head bolts.

A replaceable metal guard is provided to limit the maximum cutting depth and prevent the blade mounts from damaging the surface of the material being cut.

Shock and vibration to the operator are reduced by a rubber-mounted top handle. The top handle is also designed for comfort when used in a variety of cutting orientations. The rubber bushes on the top handle can be replaced if they become worn or damaged.

4.2 BLADE DESCRIPTION

The AS160 uses a variety of blades to cut different materials and different profiles.

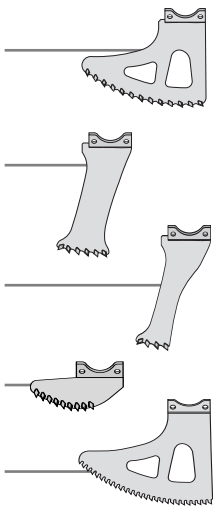
General Purpose blades use Tungsten Carbide teeth and are suited for working general masonry and "in the ground" cutting. Refer to materials guide. General Purpose blades are designed to cut to a depth of 115mm (4 1/2").

Mortar Plunge blades use Tungsten Carbide teeth and have a maximum cutting depth of 120mm (5"). Mortar plunge blades can cut slots of 75mm (3") length (single brick height).

Switch Box blades use Tungsten Carbide teeth and have a maximum cutting depth of 115mm (4 1/2"). Suitable for installing small electrical switch boxes into plaster, brick/masonry walls.

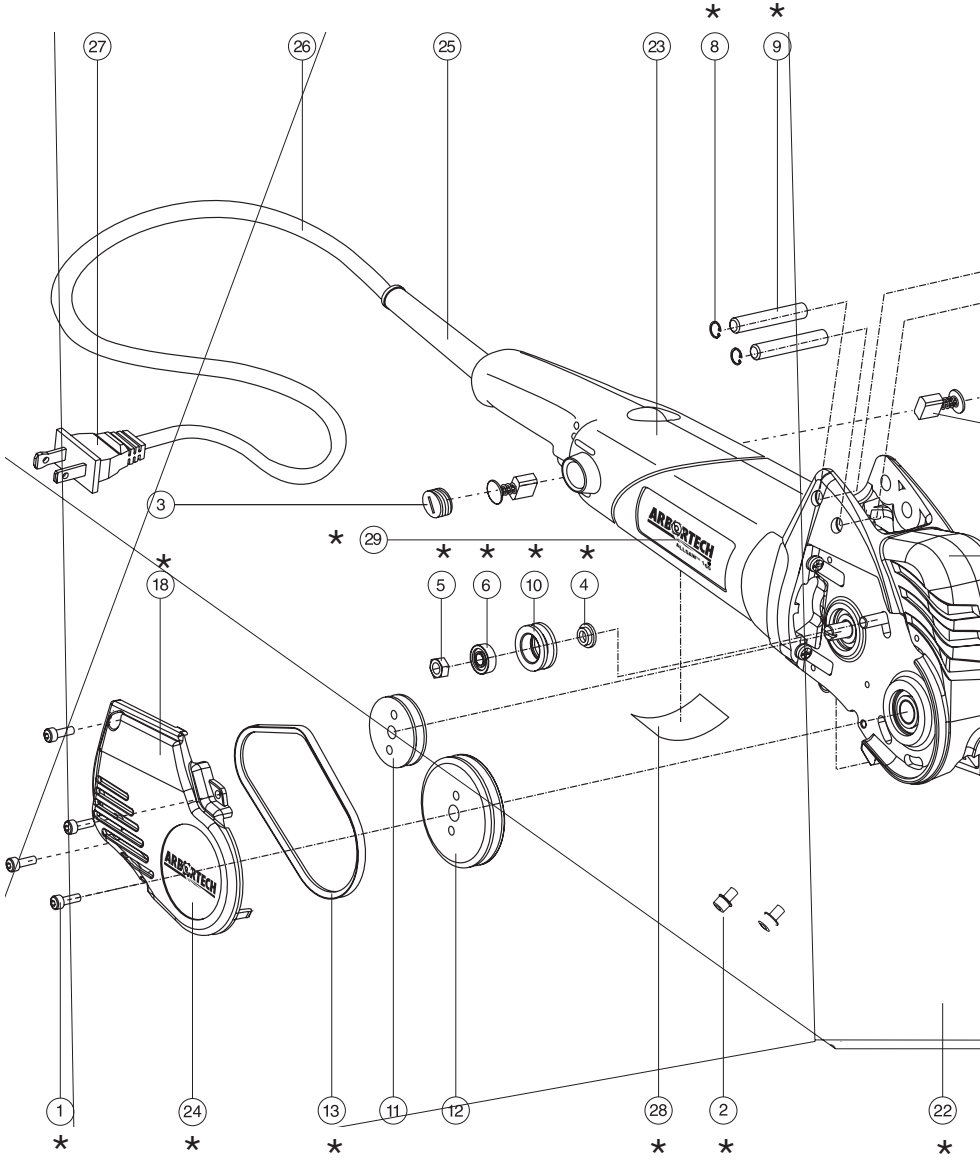
Tuckpointing blades are used for removing the mortar between the bricks in restoration work (known as Tuckpointing). Maximum cutting depth of 35mm (1 3/8").

Wood blades are used for cutting clean wood and have a maximum cutting depth of 110mm (4 1/2").

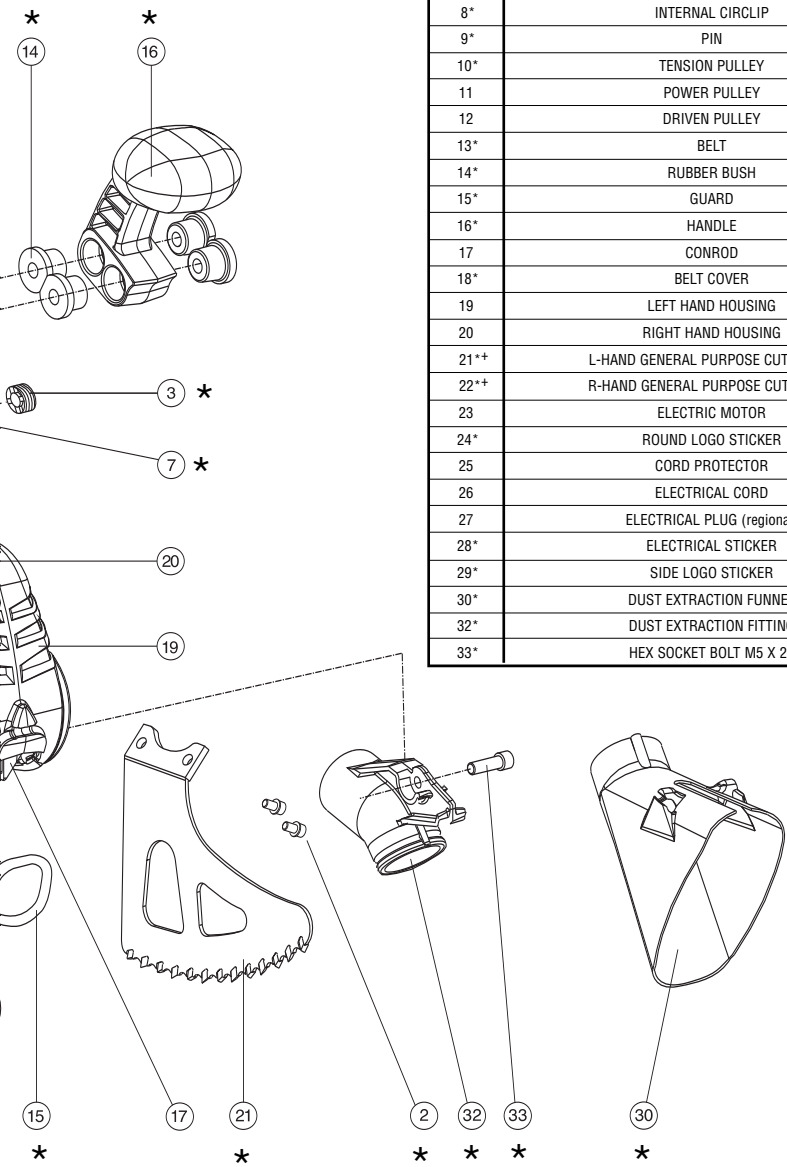


NOTE: All blades can be re-sharpened if not excessively worn.
Refer to instructions in section 11.6.

5. ASSEMBLY



ITEM	PART NAME	QTY
1*	PHILLIPS-HEAD SELF-TAPP. SCREW	4
2*	M6-SOCKET HEAD CAP SCREW	4
3*	BRUSH CAP	2
4*	ROUND STEP WASHER	1
5*	M6 HEXAGON NUT	1
6*	BALL BEARING	1
7*	ELECTRIC BRUSH	2
8*	INTERNAL CIRCLIP	2
9*	PIN	2
10*	TENSION PULLEY	1
11	POWER PULLEY	1
12	DRIVEN PULLEY	1
13*	BELT	1
14*	RUBBER BUSH	4
15*	GUARD	1
16*	HANDLE	1
17	CONROD	2
18*	BELT COVER	1
19	LEFT HAND HOUSING	1
20	RIGHT HAND HOUSING	1
21*+	L-HAND GENERAL PURPOSE CUT. BLADE	1
22*+	R-HAND GENERAL PURPOSE CUT. BLADE	1
23	ELECTRIC MOTOR	1
24*	ROUND LOGO STICKER	1
25	CORD PROTECTOR	1
26	ELECTRICAL CORD	1
27	ELECTRICAL PLUG (regional)	1
28*	ELECTRICAL STICKER	1
29*	SIDE LOGO STICKER	2
30*	DUST EXTRACTION FUNNEL	1
32*	DUST EXTRACTION FITTING	1
33*	HEX SOCKET BOLT M5 X 25	1



(★) Indicates user replaceable parts

CAUTION

Parts not marked with (★) should only be replaced by the manufacturer, its service agent or similar qualified persons.

(+) replace blades as a set

6. OPERATION

6.1 Setup

The AS160 is supplied ready for operation. However in some cases the blades may need to be changed to suit the application.

- Before changing blades, the guard around the blade mounts must be levered gently out of its groove at the front of the tool and swung away to give access to the cap screws. (See Fig.1)
- Use the Hex key supplied to loosen and remove the cap screws securing the blades, then remove the blades as shown in fig.2.
- Select the correct blades for the cutting task and mount each with their cap screws . Verify that the surfaces of the blade mounts, conrod thread and screws are clean and free of grit or lubricant of any kind before mating them. Ensure the guard can be closed before fixing the blades to the conrod (See fig.2).

NOTE: Always use matched pairs of blades. Never mix used blades with new blades. Use only the bolts supplied with the tool.

- Tighten the blade mounting screws to the Specifications in **section 9**. If using the special 'Ian key', tighten the blade mounting screws until the torque indicator coil deflects sufficiently so that the sides meet. Using the Ian Key in this manner will tighten the bolts to the required 16nm.

CAUTION: Do not operate the tool if the blades are loose. Operation with loose blades will severely damage the blade mount & bolts requiring repair at a service centre.

- Check that the teeth of the blades are lightly contacting, or within approximately 1mm ($^1/_{16}$") of contacting each other (fig.4). If the gap between the blades is too large, as may be the case after some use, they can be removed and gently bent inward to adjust the gap.
- Ensure that both blades are aligned vertically to the tool (See fig.4).

CAUTION: If the blades rub against each other anywhere other than within 20 mm/1" of the cutting edge, or contact force is high, it is possible to overload the tool and cause premature belt wear.

- Swing the guard to its groove at the front of the tool and snap it into place. (See fig.1)

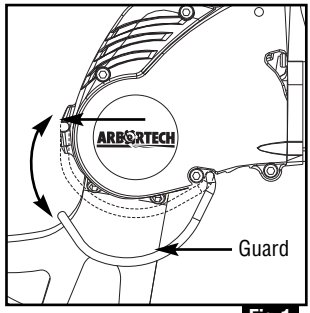


Fig.1

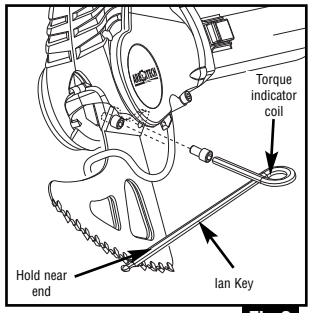


Fig.2

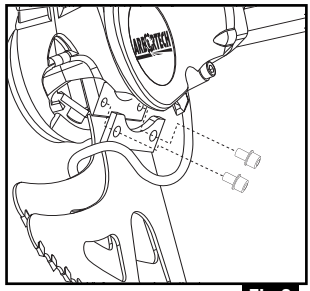


Fig.3

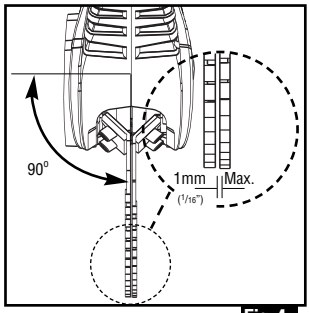


Fig.4

6.2 Operation

Before attempting to operate the tool, please ensure that the safety section of this manual has been consulted.

- Apply protective gear for hearing, breathing, eyes and body as appropriate.
- With the blades secured and verifying that the tool switch is OFF, plug the tool into the power socket.
- Hold the tool by both the top handle and the motor housing, in a way which is most comfortable to do the work. (Fig.5 & 6)

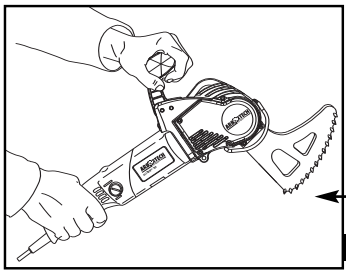


Fig.5

Correct Tool Hold

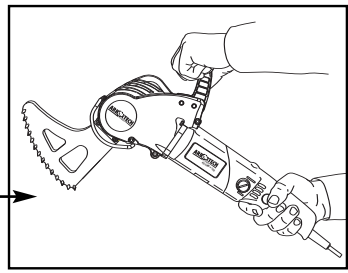


Fig.6

CAUTION: Do not block the cooling intake vents or ingest dust or debris at the rear of the motor as this may cause the motor to overheat. If working in dusty conditions, it is recommended that the vents be regularly cleaned with an air blast. (See fig.7)

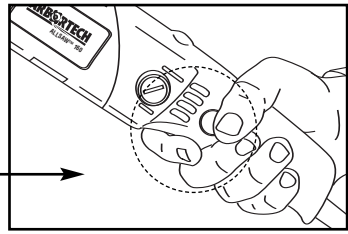


Fig.7

- To start the cut, hold the tool firmly in your hands and apply the middle of the blade cutting edge to the work, keeping in mind that the direction of cut is towards the rear of the blades.
- While cutting, move the tool and blade in a slow "sawing" motion, which improves the cut rate, reduces concentrated heat build-up and evens the wear on the blades. (See fig.8 & 9)

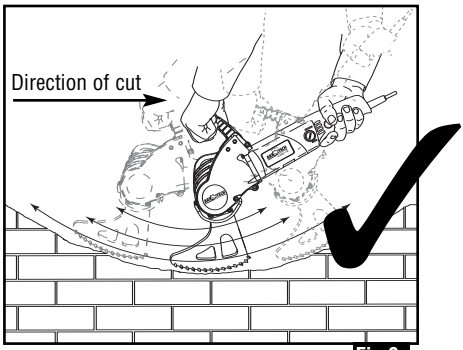


Fig.8

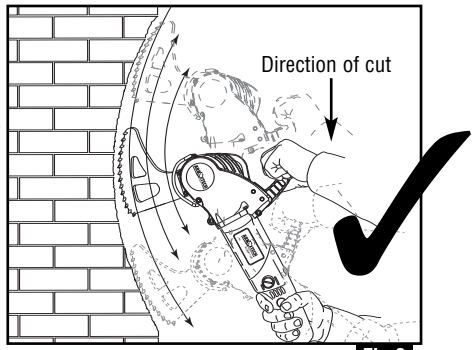


Fig.9

CAUTION: DO NOT OVERLOAD THE MOTOR.

CAUTION: Do Not allow the forward or rear end of the blades to hammer onto hard surfaces (shown in figs: 10,11 & 13) as this will damage the blades and tool. If unintentional hammering occurs, stop the tool or withdraw it from the cut immediately.

- When using any of the blade types, avoid hammering of the ends of the blades into the ends of the cut by using a slow rocking and sweeping motion. For best performance try to ensure that the teeth are the only part of the blade in contact with the workpiece.

CAUTION: Take care when setting the tool down to avoid chipping the tungsten carbide teeth.

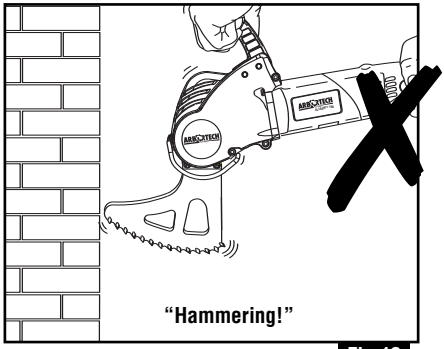


Fig.10

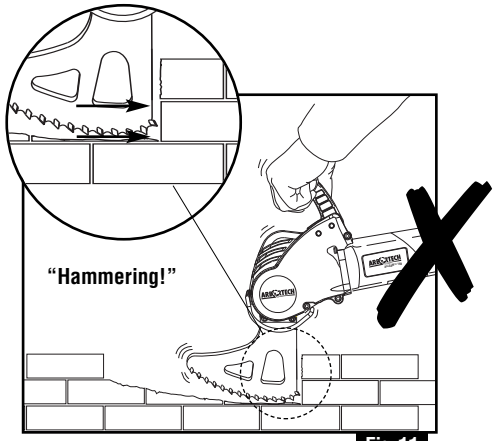


Fig.11

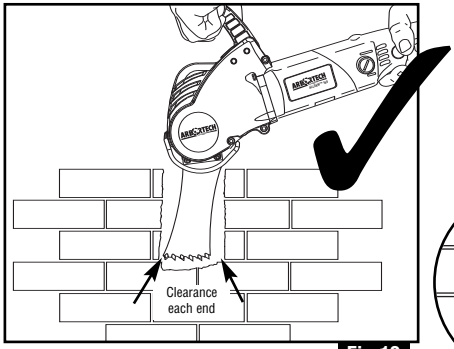


Fig.12

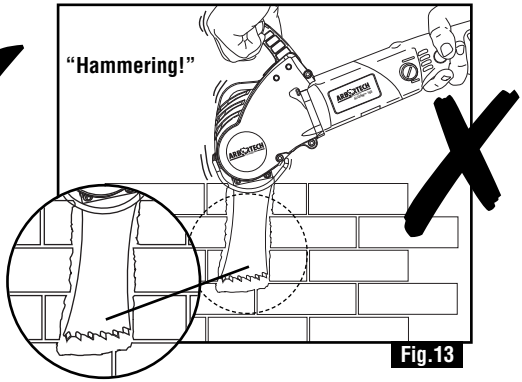


Fig.13

- When using the Mortar Plunge blades, the cut should have enough clearance on each end (shown in fig:12), to ensure that no hammering of the blade ends occurs (as shown in fig.13).

7. MAINTENANCE

The tool must be maintained and used with care to ensure it operates at its peak performance. This is relatively simple as the tool has only a few user-serviceable parts.

NOTE: Only authorised service centres should perform any repair requiring splitting of the aluminium castings or removal of the motor.

The following checks should be made regularly and maintenance carried out as necessary:
For spare parts information please contact the manufacturer.

7.1 Motor

- Because this machine operates in a rugged environment, the motor brushes must be inspected for wear after the first 15 hours and every few hours after that. (See Brush maintenance below). Brushes are a wearing component and are not a warranty item.
- The motor power cord, strain relief and plug should be regularly checked to ensure it is not chafed, cut or otherwise damaged. These components should only be repaired or replaced by a qualified person.
- The motor cooling vents on the rear cover should be frequently inspected and cleared of obstructions which would reduce cooling flow. Use air pressure to clean the vents effectively.

7.2 Brushes

Inspect & replace brushes before they wear to minimum length.
To do this, unplug tool from power socket and unscrew the plastic brush covers on either side of the tool.
Carefully remove the brushes. Measure the brush length & replace if worn to 7mm (9/32") (See fig.14).

CAUTION: UNPLUG TOOL BEFORE CHECKING/REPLACING BRUSHES.

IMPORTANT: DO NOT OVER-TIGHTEN THE BRUSH CAPS.

Insert new brushes, replacing in the same orientation as the original brushes.
Ensure brush contact correctly engaged in brush holder

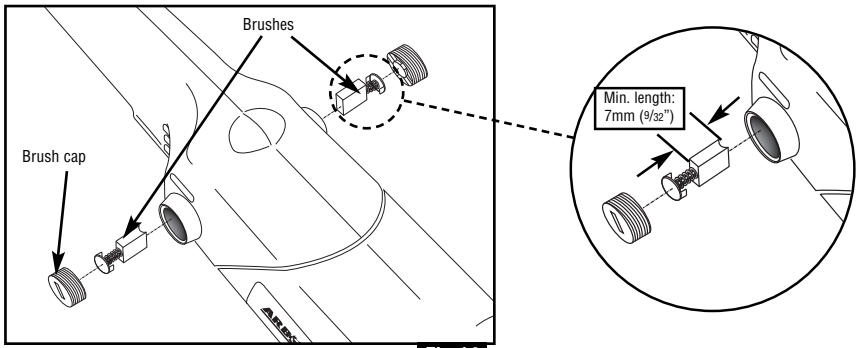


Fig.14

7.3 V belt and Pulleys

The V-belt and pulleys are not required to be inspected unless the belt slips frequently. To access these items, remove the 4 screws holding the plastic cover on the right side of the tool (see fig.15). Inspect the belt for correct tension and signs of damage or failure. If tensioning is required, loosen the the tension idler nut, but do not remove (one turn only). Slide the tension idler outward to increase the tension to the value noted in the General Specifications in **Section 3** and re-tighten. If belt replacement is required, loosen the tensioner idler, replace the belt and re-tension the idler as specified.

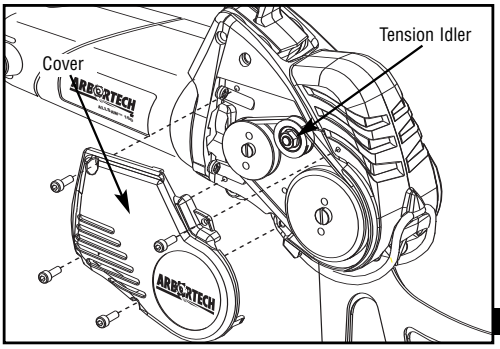


Fig.15

If excessive slipping has occurred, the pulleys can become worn to the point where they require replacement. A worn pulley is evidenced by the groove having lost its well defined "V" shape, resulting in a rounded or flattened groove. To replace either pulley, contact your authorised service centre.

7.4 Blade Mount Bolts and Threads

The blade cap screws should be regularly checked for correct torque (16Nm.)(11.5 ft lb).

Whenever blades are changed, the bolt and conrod threads should be checked to ensure they are not worn or filled with debris. If in doubt, the bolts should be replaced as continued use can strip or damage the blade mounts on the tool. Use only correct genuine spares and do not lubricate bolts, threads or conrod mating surfaces.

CAUTION: Make sure NOT to operate the tool with loose blades. If blades should come loose while operating, the blade mounts and threads can become damaged, requiring significant repairs to the tool.

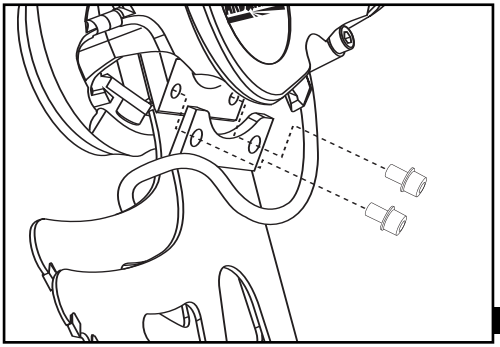


Fig.16

7.5 Top Handle and Rubber Bushes

It is recommended that the rubber shock isolation bushes on the top handle be regularly checked visually (by viewing down into the sides of the handle) and by "feel" to verify that the bushes are not damaged or worn significantly. Excessive movement of the handle may indicate damaged rubber bushes. If replacement of either the bushes or handle is necessary:

1. remove retaining rings holding the handle pin using a circlip remover.
2. push pins from the aluminium housing.
3. remove handle and rubber bushes.
4. replace rubber bushes and reassemble in reverse order.

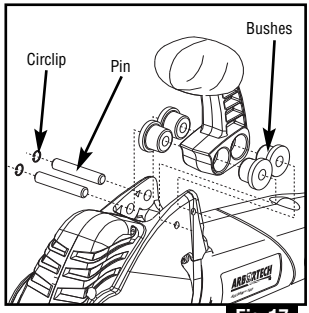


Fig.17

7.6 Tooth Sharpness

The blades should be regularly inspected for fatigue cracks in the area near the mounting plate of the blade and on the blade frame (see Fig. 18). This usually occurs near the end of the design life of the blades and the blades should then be replaced.

With use, the blades will become dull and the cutting performance will decrease. This can be largely restored by re-sharpening the teeth. Refer to Fig. 19 for correct tooth grinding profiles, noting that the tungsten-carbide tipped blades require a diamond tool for sharpening.

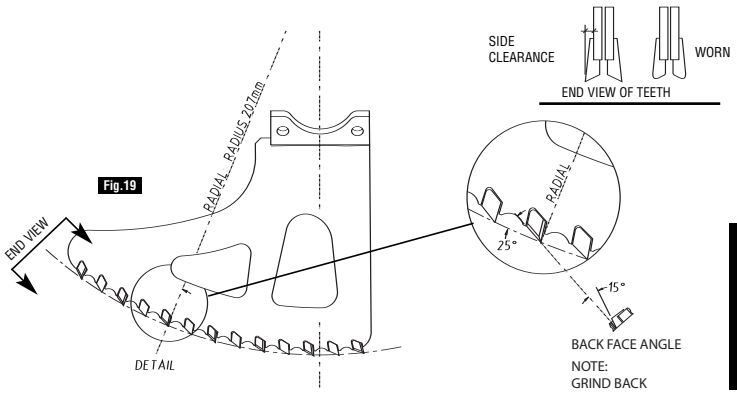
The teeth are designed with a slight side clearance. Do not use blades once the side clearance has worn away. Using blades with worn side clearance will cause excessive heat build up and may overload the motor & belt.

Occasionally, if very hard materials are cut, or the teeth impact a hard surface at an odd angle, teeth may become chipped or broken. The blades can still be used, but cutting performance will be reduced.

If "blueing" of the blade periphery occurs, the blades are running too hot. This is usually due to the teeth being worn, but can also be due to too much force being used, insufficient "sweeping" motion by the operator, or material being too hard.

Tungsten Carbide Sharpening Instructions:

Using a diamond file or fine grade diamond disc, grind the tungsten carbide teeth to the angles shown in the diagrams below. **Grind the back tooth face only** until both surfaces of the tooth create a definite sharp point. Note that the teeth orientations alternately point inside and outside.



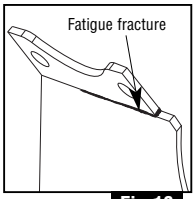
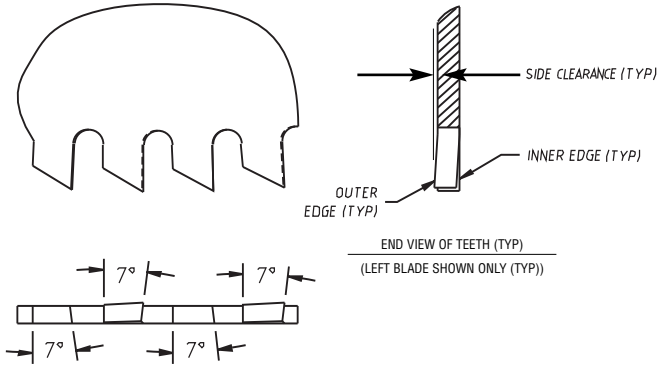


Fig.18

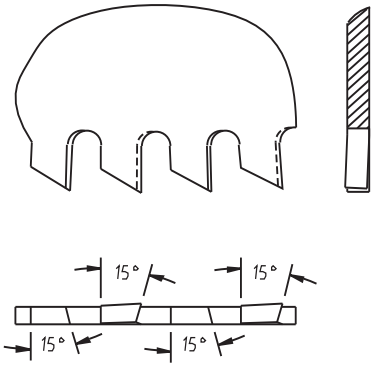
IMPORTANT
To ensure optimal performance and reduce load on motor, Blades should be kept sharp

Wood blade (Hardened steel) teeth sharpening instructions

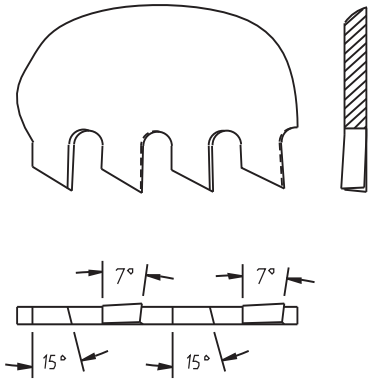
Use a fine 80 grit grinding wheel and avoid overheating teeth as this causes a loss of hardness of the steel. Sharpen to profiles shown below:



HARD WOOD CUTTING PROFILE



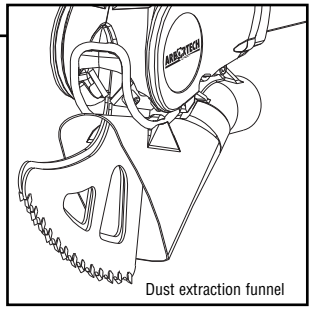
SOFT WOOD CUTTING PROFILE



COMBINATION HARD & SOFT WOOD CUTTING PROFILE

8. ACCESSORIES

8.1 Dust Extraction



Dust extraction funnel

The AS160 should be fitted with a dust extraction funnel, which significantly reduces airborne and heavy dust when used correctly. It consists of a fitting which attaches to the underside of the aluminium housing and an adjustable extraction funnel which is replaceable when it becomes worn.
The dust extraction fitting has a standard 30mm (1 3/16") bore.

NOTE: Failure to use the dust extraction funnel when cutting masonry materials will cause excessive wear of electrical components. Damage caused by dust will lead to premature failure of the motor, which will affect the warranty.

CAUTION: Verify that the vacuum machine being used has a filter system appropriate for the material being cut. Incorrect filtration can result in inadequate dust control and also possible damage to the vacuum machine.

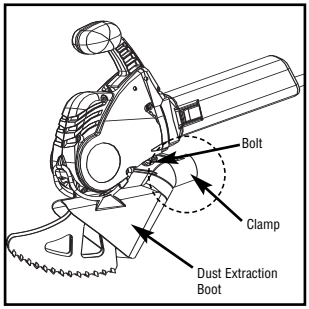
8.2 Wood Blade and Wood Jaw

The AS160 Wood Jaw, is an optional accessory, which can be added to the machine, to increase the cutting speed in timber by up to 3 times.

Only the Wood Blades may be used with the Wood Jaw. The general purpose blades are too wide, and will damage the tool & blades.

Fitting Instructions:
To use the Wood Jaw accessory, first remove the general purpose blades.
Next remove the Dust Extraction Boot and clamp by removing the M5 x 25 bolt at the bottom of the tool.

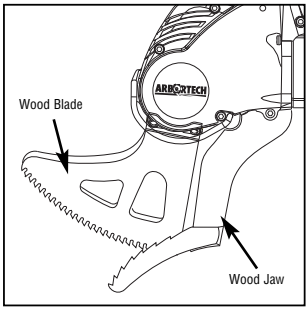
Attach the Wood blades.



CAUTION: DO NOT USE THE GENERAL PURPOSE BLADES WITH THE WOOD JAW ACCESSORY, AS IT WILL DAMAGE THE TOOL

Attach the Wood Jaw accessory by sliding the Wood Jaw into the mounting slot.

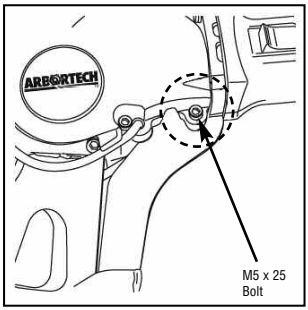
Once the Wood Jaw accessory is in place, fit the M5 x 25 Allen Bolt and tighten firmly.



CAUTION: DO NOT FORCE THE TOOL WHEN CUTTING . THE AS160 USES A DRIVE BELT, WHICH WILL SLIP IF THE BLADES SHOULD JAM. EXCESSIVE SLIPPING WILL WEAR THE BELT PREMATURELY.

CAUTION: THE WOOD JAW ACCESSORY ALLOWS THE AS160 TO CUT SOFT MATERIALS SUCH AS WOOD, PLASTIC AND RUBBER. KEEP ALL LIMBS WELL AWAY FROM THE CUTTING BLADE, AS IT MAY CAUSE INJURY.

NOTE: KEEP POWER CORD AWAY FROM BLADES AT ALL TIMES



9. SPECIFICATIONS

ITEM	SPECIFICATION
Cutting depth/width	120mm (4 3/4")/6.5mm ($^1/_{4}$"), (depending on blade/material)
Weight, with cutting blades	4.3kg (9.5lb)
Dimensions without blades	415 mm (16 $^{11}/_{32}$") L 75 mm (3") W 210 mm (8 1/4") H
Noise level	96dB max. at 1.0 m (3' 3")
Vibration level:	6.9m/s^2
No load speed n_0	6,500rpm
Rated operating time:	4min
Rated resting time:	1min
Electrical rating, nominal	230-240 VAC, 50Hz, 900W (Australia) 230 VAC, 50 Hz (Europe) 110 - 120 VAC, 50-60 Hz (USA/CANADA/UK Industrial)
Dust extraction vacuum hose interface	30mm (1 $^3/_{16}$") ID, EN 60335-2-69
Belt tension	1 mm ($^1/_{16}$") maximum mid-span deflection with 25 N (2.5 kg) (5lb) deflection force
Blade mount bolt torque	16 Nm (1.6 kg-m), (11.5ft-lb), un-lubricated

10. MATERIALS GUIDE

MATERIAL	PERFORMANCE	BLADE TYPE
BUILDING MATERIALS- COMMON		
FIBRE CEMENT- PANEL AND FENCING	CUTS WELL	G.P./P./S.B./
UNISPAN PLASTER BOARD	SOME TEARING OF PAPER. EASY CUT	G.P./P./S.B./
CLEAR PLASTIC ROOF SHEET	WILL CUT BUT ROUGH	G.P./P./
BRICK- CLAY FIRED <30MPaCUTS WELL	G.P./P./	
MORTAR - SOFT	CUTS WELL	TP.
(LIME BASED, HIGH SAND CONTENT)		
BRICK- CLAY FIRED >30MPa	WILL CUT UP TO MAXIMUM 52MPa - PERFORM TEST CUT TO CHECK HARDNESS	G.P.B./P.
FIBRE CEMENT- HEAVY SHEET, COLUMN	CUTS WELL	G.P.B./P.
MORTAR - HARD	WILL CUT TO CERTAIN HARDNESS. PERFORMANCE WILL DECREASE WITH	G.P.B./P.B.
(CONCRETE BASED, LOW SAND CONTENT)	INCREASING HARDNESS.	
CLAY ROOF TILE	CAN BE NIBBLED, BUT NOT CUT	G.P.B./P.B.
CEMENT ROOF TILE	WILL NOT CUT	NA
BRICK - CLAY FIRED >52MPa	MAY CUT, WILL CAUSE DAMAGE TO TEETH & BLADE FRAME	N/A
WOOD		G.P.B./P.B./W.B.
CHIP OR PLY BOARD OVER TO 25MM	CUTS WELL	G.P.B./P.B.
DIRTY WOOD	MAY CHIP PLASTIC VENEERS. WILL NOT CUT NAILS	G.P.B./P.B.
TREE ROOT	WILL CUT, BUT AVOID DIRT CONTAMINATION INTO MOTOR/BELT.	W.B.
CARDBOARD-DENSE TUBE ETC	CUTS WELL, SOME TEARING	W.B.
GREEN WOOD	CUTS WELL	W.B.
MEDIUM DENSITY FIBRE BOARD	CUTS WELL	
ASPHALT		G.P.B./P.B.
ASPHALT BITUMEN- 2-4mm AGG	CUTS VERY WELL	G.P.B./P.B.
ASPHALT BITUMEN- 8-18mm AGG	CUTS WELL	G.P.B./P.B.
ASPHALT BITUMEN- 5-10mm AGG	HARD TO BREAK THROUGH STONEY SURFACE BUT CUTS WELL THEREIN	G.P.B./P.B.
ASPHALT BITUMEN- 8-18mm AGG	NOT RECOMMENDED	
CONCRETE		G.P.B./P.B.
FOAMED CONCRETE	CUTS EXTREMELY FAST	G.P.B./P.B.
FRESH CONCRETE (GREEN)-MINUS AGG	CANNOT BE TOO SOFT, OR TOO HARD WHEN SETTING	G.P.B./P.B.
SANDY CONCRETE- MINUS AGG <7mm	CAN CUT WELL, TOO SOFT AND CRUMBLES- TOO HARD WON'T CUT	NA
SOLID CONCRETE	WILL NOT CUT	
ROCK		G.P.B./P.B.
SANDSTONE- SOFT	CAN CUT WELL, TOO SOFT AND CRUMBLES- TOO HARD WON'T CUT	G.P.B./P.B.
LIMESTONE- NATURAL	EASILY CUT	G.P.B./P.B.
CLAY- NATURAL	CAN CUT IF DRY AND CRUMBLING. WILL NOT CUT IF TOO WET.	G.P.B./P.B.
LIMESTONE- incl. CALCIFIED DEPOSITS	WILL NOT CUT VERY HARD CALCIFIED DEPOSITS	G.P.B./P.B.
LIMESTONE- RECONSTITUTED	CAN CUT BUT QUITE SLOW	G.P.B./P.B.
CLAY- FIRED	WILL NOT CUT	NA
SANDSTONE- HARD	WILL NOT CUT	NA
GRANITE/ MARBLE	WILL NOT CUT	NA

G.P.B.: General Purpose Blade **S.B.: Switch Box Blades** **TP.B.: Tuckpointing Blades**
P.B.: Plunge Blade **W.B.: Wood Blade**

NOTE: During operation the AS160 may cause hand-arm vibration, which can result in fatigue or discomfort after long periods of continuous use. Vibration will increase with the hardness of material. Do not operate the tool if discomfort is experienced, and ensure that sufficient rest periods are taken during cutting. For further information, contact the manufacturer.

NOTE: Blades are a wearing part. In normal operation, blade life may vary with the hardness of materials cut.

ATTN: Torque mounting bolts to 16Nm (11.5 ft lb).

11. TROUBLESHOOTING

This fault diagnosis is intended for use by persons familiar with mechanical devices, and provides a basic capability to maintain the tool. To correct the user serviceable faults, refer to the Maintenance section of this manual. The more complex repairs as noted below, must be performed by an authorised service centre.

ITEM	SYMPTOM	CHECK/REMEDY
1	Motor overheating	Verify that all cooling vents are not obstructed by operators hand, debris in vents, or other. Remedy or clean as required. Verify blades are not rubbing against each other with excessive force, either at cutting edge or close to blade mounts. Blades may be worn and overheating. Replace as required. Check that belt tension is not excessive. Check that bearings have not failed by removing plastic side cover and belt and rotating both pulleys independently checking for roughness. The power pulley should rotate easily and smoothly. The driven pulley should rotate smoothly but will have a "springy" feel, wanting to stay in either of 2 positions. Verify that the motor housing is secure with the tool. If loose, refer to authorised service centre immediately.
2	Noisy operation or unusual vibration	Blades loose -tighten blade mount bolts. Blade failure - replace blade set. Leaf spring failure - contact authorised service centre. Bearing failure - contact authorised service centre. Gearbox failure - contact authorised service centre. Handle rubber mounts damaged or worn - replace.
3	One or both conrods/blades loose, even when mounting bolts tightened	Leaf spring failure - contact authorised service centre.
4	Belt slipping	Loose belt - re-tension as necessary. Worn belt - replace belt. Worn pulleys - contact authorised service centre.
5	Slow cutting performance	Teeth worn, chipped or lost. Sharpen or replace blade. Belt slipping - see Symptom 4. Blades rubbing against each other with excessive force - see Symptom 8. Attempting to cut material which is too hard.

6	Grease/oily leakage from bearings near blade mounts.	This is normal in approximately the first hour that the new tool is operated or if new bearings have been installed. Leakage should reduce and stop thereafter.
7	Grease/oily leakage from aft end of aluminium housing.	Leaking gearbox grease seal - a very minor "weep" is normal, but if excessive contact authorised service centre.
8	Blades rubbing together with excessive force.	Remove blade/s and bend slightly to correct.
9	Blade teeth chipped or lost.	Occurs occasionally if hard material is encountered, or if the "back side" of teeth are impacted. Care not taken in setting tool down on teeth on hard surfaces or loose in tool box. Worn blades will start to become hot in certain areas, causing teeth to de-bond - replace blades. Material too hard.
10	Loose top handle.	Worn or damaged rubber bushes - replace.
11	Sticking switch/	Blow out with compressed air. If problem persists contact authorised service centre.
	switch not turning off.	
12	Blades "blueing".	Worn teeth - replace blades. Excessive force being used. Insufficient "sawing" motion by the operator. Material too hard.
		Blades rubbing together with excessive force (see section 8).
13	Blade mounting bolts not	Threads on bolts stripped - replace bolts not tightening.
	tightening fully.	Threads on tool stripped - contact authorised service centre.
14	Tool will not run.	Check brushes are not damaged or excessively worn - replace as required. Check power cord for damage - contact authorised service centre.

For warranty repair, inspection, service and spare parts,
please contact your place of purchase,

or

Check out our website **www.arbortech.com.au**
to locate a dealer or service agent in your area

or

Contact us directly:

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